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MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
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(54) Title: ANTIOXIDANT FOR FATS, OILS AND FOOD

(57) Abstract: A combination of one or more compounds selected from the group consisting of 3-arylbenzofuranones, long chain N,N-dialkylhydroxylamines, substituted hydroxylamines, nitrones, and amine oxides are highly effective antioxidants for use with edible organic substances subject to deterioration by oxidation.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/50954

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A23L3/34 A23L3/35 A23K1/16 C11B5/00 A23D9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A23L A23K C11B A23D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, FSTA, BIOSIS, CHEM ABS Data, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 346 630 B1 (ZINGG JUERG ET AL) 12 February 2002 (2002-02-12) column 1, paragraph 5 - column 13, line 65 column 23, paragraph 2 column 26, paragraph 21-55 ----- X US 6 359 148 B1 (ZINGG JUERG ET AL) 19 March 2002 (2002-03-19) column 1, paragraph 5 - column 13, line 53 column 23, paragraph 2 column 26, lines 16-50 ----- -/-	1-4, 14-17, 19,20
X		1-4, 14-17, 19,20

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

* Special categories of cited documents :

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- "E" earlier document but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category ^a	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NIIISHIYAMA, T., SHIOTSU, S., AND TSUJITA, H.: "Antioxidative activity and active site of 1,3-indandiones with the beta-diketone moiety" POLYMER DEGRADATION AND STABILITY, vol. 76, June 2002 (2002-06), pages 435-439, XP002280823 GBBARKING page 435, column 1, paragraph 1 - column 2, paragraph 3 ----- EP 0 867 467 A (GEN ELECTRIC) 30 September 1998 (1998-09-30) page 10, lines 48,49 page 11, lines 11-14 -----	1-4, 14-17, 19,20
X		1-4, 14-17, 19,20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/50954

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the Invention first mentioned in the claims; it is covered by claims Nos.:

1 (partially), 2-4, 14-17, 19, 20

Remark on Protest

The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1(partially), 2-4,14-17,19,20

 Use of 3-arylbenzofuranones as antioxidants in food compositions.

2. claims: 1(partially), 5-7, 14-20

 Use of organic N,N-dialkylamines as antioxidants in food compositions.

3. claims: 1 (partially), 8, 14-20

 Use of substituted hydroxylamines in foods compositions.

4. claims: 1 (partially), 9 , 14-20

 Use of nitrones in food compositions

5. claims: 1 (partially) 10- 20

 Use of amine oxides in food compositions.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/50954

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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